

CLAIMS

1. An earphone or headphone characterized by having a vibration actuator mounted as an electroacoustic transducer, said vibration actuator comprising a magnetic circuit which is composed of a permanent magnet, a yoke, and a plate used for concentrating magnetic flux of said permanent magnet and which has a magnetic gap at a portion thereof; a coil disposed in the magnetic gap of said magnetic circuit; a vibrating plate attached with said coil and imparted with a driving force by said coil; a suspension formed by a flexible spring and supporting said magnetic circuit; and a vibration transmitting portion fixing said suspension.

2. An earphone or headphone according to claim 1, characterized in that, by simultaneously inputting a low frequency signal for generating a body sensible vibration and a signal for generating a sound and having a frequency higher than that of said low frequency signal, said vibration actuator simultaneously generates said body sensible vibration and said sound.

3. An earphone or headphone according to claim 1 or 2, characterized in that, in said vibration actuator, said magnetic circuit vibrates in response to an input signal of a low-band frequency that generates a body sensible vibration and a low-pitched tone, both of said vibrating plate and said magnetic circuit vibrate in response to an input signal of an intermediate-band frequency, and said vibrating plate vibrates in response to an input signal of a high-band frequency to produce a high-pitched tone.

4. An earphone or headphone according to any one of claims 1 to 3, characterized by further comprising a cover covering an outer side and a terminal for electrical connection, said terminal being disposed on said cover.

5. An earphone or headphone according to claim 4, characterized in that the terminal for electrical connection is provided inside a vibrator.

6. An earphone or headphone according to claim 4, characterized in that said cover has a sound release hole for air viscosity attenuation.

7. An earphone or headphone according to any one of claims 1 to 6, characterized in that the vibration actuator in claim 1 has a stepped structure disposed at an outer periphery of said magnetic circuit to protect rolling of said magnetic circuit.

8. An earphone or headphone characterized in that said stepped structure has an air hole.

9. An earphone or headphone according to any one of claims 1 to 8, characterized in that, in said vibration actuator in claim 1, said magnetic circuit has a vibration resonance frequency between 60Hz and 300Hz.

10. An earphone or headphone according to claim 9, characterized in that the earphone or headphone allows bodily sensation of "a vibration sound", "a tactile sound", and "a conduction sound" felt by tactile sense.